R E P O R T  R E S U M E S

ED 011 377 AL 000 293

THE PHONEMES OF OKINAWAN.

BY- LUELSDORFF, PHILIP A.

EDRS PRICE MF $.09 HC $.40 10P.

DESCRIPTORS- *OKINAWAN, *PHONEMES, *DISTINCTIVE FEATURES, VOWELS, CONSONANTS, SYLLABLES, MORPHOPHONEMICS, LINGUISTICS, RYUUKYUU ARCHIPELAGO, AGENA GUCHI

THE LANGUAGES OF OKINAWAN MAY BE DIVIDED INTO THREE MUTUALLY UNINTELLIGIBLE REGIONAL DIALECTS, CORRESPONDING GEOGRAPHICALLY TO THE THREE GROUPS OF ISLANDS OF THE RYUUKYUU ARCHIPELAGO. AS REPRESENTATIVE MODEL OF THE REGIONAL DIALECTS, AGENA-GUCHI IS ANALYZED WITH RESPECT TO PHONEMIC SYSTEMS, OKINAWAN MORPHOPHONEMICS, AND OKINAWAN SYLLABLE STRUCTURE WITHIN THE TRANSFORMATIONAL GENERATIVE FRAMEWORK. FOUR SUBCLASSES OF PHONEMES ARE ESTABLISHED--(1) VOWELS, FIVE SYSTEMATIC PHONEMES, (2) LIQUIDS, ONE PHONEME, (3) GLIDES, ONE PHONEME, AND (4) CONSONANTS, EIGHT PHONEMES. ALL ARE DISCUSSED AND CLASSIFIED ACCORDING TO ACOUSTIC AND ARTICULATORY CRITERIA. THE SUBCLASS "CONSONANTS" IS FURTHER DIVIDED INTO TWO SYSTEMS ACCORDING TO THE PRESENCE OR ABSENCE OF THE FEATURE (CONTINUANT). THE VOWELS ARE REPRESENTED BY A FIVE-MEMBERED TRIANGULAR SYSTEM BASED ON THE FOLLOWING DISTINCTIVE FEATURES--VOCALIC - CONSONANTAL, DIFFUSE - COMPACT, AND GRAVE. NEITHER PITCH NOR STRESS IS DISTINCTIVE. A COMPLETE ANALYSIS OF OKINAWAN SEGMENTAL PHONEMES MIGHT REQUIRE ADDING TWO MORE DISTINCTIVE FEATURES, MORA - NONMORA, AND SYLLABIC - NONSYLLABIC, TO COVER DEEP STRUCTURE AND SURFACE STRUCTURE DERIVATIONS. (FB)

# THE PHONEMES OF OKINAWAN

Philip A. Luelsdorff
Center for Applied Linguistics
Washington, D.C. 20036

Introduction. Okinawan, an autonomous language historically related to Japanese, is spoken by the one million or so inhabitants of the Ryuukyuu Archipelago, a long constellation of islands forming the Okinawa prefecture of Japan. Japanese cartographers traditionally divide the islands into three groups, of which the northern is called Oshimo-shoto; the central Okinawa-gunto; and the southern Sakishima-retto. Corresponding to each of these groups are three mutually unintelligible regional dialects -- the Northern, the Central, and the Southern. Over the years, Okinawan has undergone considerable linguistic influence from China and Japan and, most recently, from the United States.

The informant used for this study, an Okinawan student in her twenties, is a native speaker of the Agena-guchi variety of Okinawan spoken in the vicinity of the town Agena. In addition to her native command of Okinawan, she speaks Standard Japanese and English fluently and has formally studied French.

We present the systematic phonemic inventory of Agena-guchi, each phoneme defined in both articulatory and acoustic terms, a fragment of Okinawan morphophonemics, and a brief discussion of Okinawan syllable structure within the transformational generative framework. It is understood

that the analysis presented is tentative, subject to revision given the collection of contradictory data.

The systematic phonemes of Okinawan. The phonemes of Okinawan may conveniently be divided into four subclasses, each subclass defined by the presence or absence of the features Vocalic and Consonantal. The presence of the features Vocalic and Consonantal defines the class of liquids, the absence of the features Vocalic and Consonantal defines the class of glides, the presence of the feature Vocalic and the absence of the feature Consonantal define the class of vowels, and the absence of the feature Vocalic and the presence of the feature Consonantal define the class of consonants.

The vowels. Five systematic vowel phonemes are hypothesized to account for the vocalic data thus far collected: i, e, ɑ, o, u. i is a high front vowel, exhibiting facultative devoicing and laxing. Its distinctive features are Vocalic, nonConsonantal, Diffuse, nonCompact, and nonGrave. e is a mid front vowel, exhibiting, like i, facultative laxing but, unlike i, is never voiceless. Its distinctive features are Vocalic, nonConsonantal, nonDiffuse, nonCompact, and nonGrave. ɑ is a low central vowel, automatically voiced and automatically tensed. Its distinctive features are Vocalic, nonConsonantal, nonDiffuse, and Compact. u is an obligate high back vowel which, like i, exhibits nondistinctive voicelessness and nondistinctive laxness. Unlike i, however, it is facultatively unrounded. Its distinctive features are Vocalic, nonConsonantal, Diffuse, nonCompact, and Grave. o is a mid back vowel which, like its front congener, is facultatively lax but never

voiceless. Its distinctive feature composition is Vocalic, nonConsonantal, nonDiffuse, nonCompact, and Grave.

One justification for postulating the above five systematic vowel phonemes is found in the necessity of differently representing phonetic paradigms of the following type: [mii] 'eye', [mee] 'front', [mαα] 'where', [moo] 'field', [muu] 'seaweed'. Moreover, no examples of minimal pairs have thus far been adduced which (1) differ only in respect to their vocalic segments and (2) can not be distinctly represented by means of the above five systematic vowel segments. We therefore conclude that the above analysis is both necessary and sufficient to the adequate specification of the vowel inventory of Okinawan.

Geminate vowels occur distinctively, but such functional gemination is restricted to segments specified either Diffuse or Compact, i.e., to i, α, and u. Postulating geminate vowels, as opposed to vowel length, complicates the statement of sequential constraints but reduces the distinctive feature inventory by one feature, viz. the feature of length. The simplicity metric, then, provides little or no justification for preferring one analysis over the other.

Examples of distinctive gemination are found in [šiši] 'meat', [šiiši] 'lion', [mαči] 'town', [mααči] 'pine tree', [ču] 'people', [čuu] 'today'. As stated, distinctive gemination of vocalic segments which are specified nonDiffuse and nonCompact is unattested.

The solution to the gemination/length problem follows from the

adequate handling of the discrepancy between morae and syllables, morae being accounted for in deep structure representations and, in certain cases, deleted during the process of surface representation derivation. This solution requires adding the two features Mora/nonMora and Syllabic/nonSyllabic to the current inventory of Jakobsonian distinctive features. All phonological segments in deep structure representations will be specified either Mora or nonMora, but not both, or either Syllabic or nonSyllabic, but not both. Thus, theoretically, every segment will be one of the following four segment types:

(1) segments specified Mora and Syllabic;

(2) those specified Mora and nonSyllabic;

(3) segments specified nonMora and Syllabic; and,

(4) those specified nonMora and nonSyllabic.

Type 2 segments will be represented by '#' in the systematic phonemics and the systematic phonetics. By way of example, systematic phonemic #kuo 'child', consisting of three morae and two syllables is systematic phonetic [#kʍɑ], consisting of two morae and one syllable. Systematic phonemic otoo, consisting of three morae and three syllables, is systematic phonetic [ɔtoo], consisting of three morae and two syllables. Systematic phonemic it#tu 'a unit of measure of rice', consisting of three morae and two syllables, is systematic phonetic [it#tu], consisting of three morae and two syllables. Systematic phonemic poopoo 'a kind of pancake', consisting of four morae and four syllables, is systematic phonetic [poopoo], consisting of four morae and two syllables. Unattested are examples of forms the number of syllables of which exceeds the number of morae.

Pitch is nondistinctive. Since vocalic gemination is distinctive, it follows that vocalic intensity is not. We therefore conclude that the prosodic features of Okinawan function expressively, not conatively.

In sum, the vowels of Okinawan constitute a five-membered triangular system (Dreiecksystem) in which neither pitch nor stress is distinctive.

We give the following analytic transcription of the vowel pattern of Okinawan:

| Segment / Feature | i | e | ɑ | u | o |
|---|---|---|---|---|---|
| Vocalic | + | + | + | + | + |
| Consonantal | - | - | - | - | - |
| Diffuse | + | - | - | + | - |
| Compact | - | - | + | - | - |
| Grave | - | - | - | + | + |

The vowel phonemes of Okinawan

Here, segments stand in columns and features rest in rows; '+' indicates the presence of a feature and '-' indicates its absence.

The consonants. The class of consonants, defined by the predicate 'is specified [+Consonantal] and [-Vocalic]', may conveniently be partitioned into two subclasses, each subclass defined by the presence or absence of

the feature [Continuant].

We hypothesize that eight systematic consonant phonemes are both necessary and sufficient to account for the obstruent pattern of Okinawan: p, b, t, d, k, g, m, n. p is a voiceless bilabial stop with the distinctive features of nonVocalic, Consonantal, Diffuse, Grave, nonNasal, nonContinuant, and nonVoiced. b is the voiced congener of p. t has the same articulatory and acoustic features as p, except that t is articulatorily dental and acoustically nonGrave. d is the voiced counterpart of t. k is a voiceless velar stop, acoustically specified as nonVocalic, Consonantal, nonDiffuse, Grave, nonNasal, nonContinuant, and nonVoiced. g is its voiced counterpart. m is articulatorily and acoustically similar to p, except that m is Nasal while p is not. n is identical to m, except n is dental while m is labial, and m is Grave while n is not.

Motivation for the above analysis of the Okinawan obstruents is derived from observation of the following pairs: [poo] (a potential word; cf. [poopoo] 'a type of food') and [boo] 'pole'; [too] 'China' and [doo] 'candle; [koo] 'type of perfume' and [goo] 'a unit of measure'; [muu] 'seaweed' and [nuu] 'what?'.

For the systematic phonetic [c͡ç] and [ɟ͡ʝ], as in [c͡çuu] 'today' and [ɟ͡ʝuu] 'tail', we hypothesize systematic phonemic ts and ds and, by means of a Compacting Rule which operates on s in the environment of an immediately following i, derive systematic phonetic [c͡ç] and [ɟ͡ʝ]. Thus, systematic phonetic [c͡çuu] and [ɟ͡ʝuu] are systematic phonemic tsiuu and dsiuu.

Independent corroboration for such a Compacting Rule is found, inter alia, in the alternation of s and [s̆]. Here, [s̆] is obligatory in the environment of an immediately following i: [s̆iikʍαsα] 'lime', [s̆iitαki] 'mushroom', [s̆ii] 'nest', but note [jeisα] 'traditional', [suu] 'father', [gαr̆αsu] 'glass', where s is [s]. In an apparently restricted number of instances, [s] varies "freely" with [s̆]: [see] ~ [s̆ee] 'salt-water shrimp', [jαα see] ~ [jαα s̆ee] 'green vegetable'.

The set of systematic phonemic continuants consists only of the member s. s is a voiceless dental fricative, acoustically specified nonVocalic, Consonantal, Diffuse, nonGrave, nonNasal, Continuant, and Voiceless. s is compacted immediately preceding nonGrave vowels and voiced immediately following d (cf. above).

The liquid and glide. The systematic phonemic inventory of Okinawan contains the single liquid r̆ and the single glide h. r̆ is an apico-alveolar flap, acoustically specified Vocalic, Consonantal, nonDiffuse, nonGrave, nonContinuant, and Voiced. h is a voiceless glottal glide, the distinctive features of which are nonVocalic, nonConsonantal, nonDiffuse, Grave, nonNasal, Continuant, Voiceless.

r̆ differs from d only in that d is Diffuse while r̆ is nonDiffuse. Since [r̆] "freely" varies with [d] before i, d is operated on by the same Compacting Rule postulated to account for the s:š, ts:tš, ds:dš:dž alternations discussed above. Examples of the d:r alternation include [dikα] ~ [r̆ikα] 'let's go' and [doo] ~ [r̆oo] 'candle'. But note the contrast in [duku] 'poison' and [r̆uku] 'tithe'. Apparently, the d:r̆ alternation

immediately preceding i and o is found in both the Agena and the prestigious Shuri varieties of Okinawan.

h differs from ʍ only in that ʍ is Diffuse, while h is nonDiffuse. In the present analysis h is rewritten as [ʍ] before u, [ç] before i, and either [h] or [ʍ] before either o, or e, or ɑ. Examples: [ʍuu] 'sail, n.', [çisɑ] 'foot', [uhooku] ~ [uʍooku] 'plenty'; [hee] ~ [ʍee] 'ash', [uhɑkɑ] 'grave'.

The systematic phonetic glides [w] and [j] are, in this analysis, derivable from underlying u and i , respectively.

We summarily represent the systematic consonant, liquid, and glide phonemes of Okinawan by means of the following analytic transcription:

| Segment / Feature | p | b | m | t | d | s | n | k | g | r | h |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vocalic | - | - | - | - | - | - | - | - | - | + | - |
| Consonantal | + | + | + | + | + | + | + | + | + | + | - |
| Diffuse | + | + | + | + | + | + | + | - | - | - | - |
| Grave | + | + | + | - | - | - | - | + | + | - | + |
| Nasal | - | - | + | - | - | - | + | - | - | - | - |
| Continuant | - | - | - | - | - | + | - | - | - | - | + |
| Voice | - | + | + | - | + | - | + | - | + | + | - |